

Amendment and Response

Applicant: Alexander C. Ranous et al.

Serial No.: 09/559,693

Filed: April 27, 2000

Docket No.: 10002147-1

Title: INTERNET USAGE DATA RECORDING SYSTEM AND METHOD EMPLOYING DISTRIBUTED DATA PROCESSING DATA STORAGE

REMARKS

The following remarks are made in response to the Office Action mailed February 24, 2005. Claims 1-5, 8-10, 21-27, 29 and 36-43 were rejected. With this Response, claim 21 has been amended. Claims 1-5, 8-10, 21-27, 29 and 36-43 remain pending in the application and are presented for reconsideration and allowance.

Claim Rejections under 35 U.S.C. § 103

Claims 1-8, 21-27, 36-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schweitzer et al. 2002/0091811 (Schweitzer) in view of Carroll Bullard US 2002/0091636 (Carroll). Claims 9-10, 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schweitzer in view of Carroll Bullard and further in view of Dyer et al. U.S. Patent No. 4,361,877 (Dyer). Dependent claims 9 and 28 depend upon corresponding independent claims 1 and 21, which Applicants believe to be allowable. Accordingly, only the rejection of independent claims 1, 21, 36 and 40 are discussed in detail. Applicants submit that independent claims 1, 21, 36 and 40 are patentable over Schweitzer, either alone or in view of the secondary references Carroll and Dyer.

Independent claim 1 recites a network usage system having a multiple level distributed data storage system. The system includes a set of first level network data collectors, wherein each first level network data collector receives network accounting data from a network data source, processes and stores the network accounting data at the first level network data collector. A second level network data collector is provided, wherein the second level network data collector receives processed network accounting data from one or more first level data collectors, processes and stores the network accounting data at the second level network data collector. Each first level network data collector includes a first level data storage system and the second level network data collector includes a second level data storage system, for storing process network accounting data. The first level data storage system and the second level data storage system each include a processed data storage location, a meta data storage location and an error

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recovery information storage location, wherein the processed network accounting data is stored at the process data storage location.

Schweitzer discloses a system, method and computer program product for merging data in a network-based filtering and aggregating platform. The system includes gatherer devices that gather detailed information from various information source devices and convert the information into standardized information. The gatherer devices can correlate the gathered information with account information for network transaction accounting. Manager devices manage the gatherer devices and store the gathered standardized information at a central location. See Schweitzer, for example, paragraph 0011.

Bullard discloses a system for capturing quality of service. The system includes a data collector layer 18 that is a distributed layer of individual data collectors. The data collectors collect raw accounting information and convert data into normalized records referred to as network accounting records (NARs). Each of the data collectors forwards network accounting records to a flow aggregation process 60. (See column 3, lines 43-54). The flow aggregation process 60, including aggregation processor 13, is a central collection point for all network accounting records produced from various data collectors in the data collection layer 18. The flow aggregation processor 60 aggregates and/or enhances record data across the network devices to produce summary NARs' (column 4, lines 1-26), and (column 18, lines 39-49). The data can be further enhanced and/or reduced (i.e., aggregated) to meet the specific needs of an application or output interface based on the aggregation policy of the flow data processor 60.

As conceded by the Examiner, Schweitzer fails to disclose a network usage system wherein the first level data storage system and the second level data storage system each include a processed data storage location, a meta data storage location and an error recovery information storage location, wherein the processed network accounting data is stored at the processed data storage location. See also, Office Action mailed February 24, 2005.

Carroll also fails to disclose a network usage system wherein the first level data storage system and the second level data storage system each include a processed data

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storage location, a meta data storage location and an error recovery information storage location, wherein the processed network accounting data is stored at the processed data storage location. In contrast, Carroll merely discloses a flow probe which may be deployed between an end system "A" and an end system "B". The flow probe is used to generate an error report. The flow probe can receive an Internet Message Control Protocol (IMCP) message to convey error information back to an originator of a request, such as a device being in a failed state. See Carroll, col. 13, paragraph 0148. Such a system as disclosed by Carroll is not claimed by Applicants. As such, one skilled in art cannot combine the teachings of Schweitzer in view of Carroll and arrive at the invention of independent claim 1.

Dependent claims 2-5 and 8-10 depend either directly or indirectly upon independent claim 1. Accordingly, Applicant believes these dependent claims also to be allowable over the art of record.

Schweitzer in view of Carroll also fails to teach or suggest the invention of independent claim 21. Independent claim 21 recites a method for recording network usage including storing network data in a multiple level data storage system. The method includes defining a set of first level data collectors. A first set of network accounting data is received at each first level network data collector. The first network accounting data set is processed and stored at the first level network data collector. A second level network data collector is defined. The first network accounting data set is received from one or more first level network data collectors. The first network accounting data set is processed to produce a second network accounting data set. The second network accounting data set is stored at the second level network data collector. A first level aging policy is defined for the first level network data collector. The first network accounting data set is removed from the first level network data collector after a time period corresponding to the first level aging policy.

In contrast to the Examiner's remarks, Schweitzer fails to disclose **defining a first level aging policy for the first level network data collector, and removing the first network accounting data set from the first level network data collector to the second level network data collector after a time period corresponding to the first level aging policy.** See Office

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Action mailed February 24, 2005, page 3. In contrast, Schweitzer discloses performing clean-up and aging procedures at central database 175. The central database 175 is not a first level network data collector as claimed by Applicants. Further, in Schweitzer, old data is removed from central database 175 for free new space periodically. See Schweitzer, para. [0084] and [0090]. As such, Schweitzer fails to disclose removing the first network accounting data set from the first level network data collector to the second level network data collector after a time period corresponding to the first level again policy. As such, one skilled in the art could not combine the teachings of Schweitzer, either alone or in view of Carroll, and arrive at the invention of claim 21.

Dependent claims 22-27 depend either directly upon corresponding independent claim 21. Accordingly, Applicant believes these dependent claims to also be allowable over the art of record.

Schweitzer in view of Carroll also fails to teach or suggest the method of independent claim 36. Amended independent claim 36 recites a method for recording network usage including storing network data in a multiple level data storage system. The method includes defining a set of first level network data collectors. A first set of network usage information is received at each first level network data collector. The first network usage information set is processed and stored at the first level network data collector. A second level network data collector is defined. The first network usage information set is received at the second level network data collector from one or more first level network data collectors. The first network usage information set is processed to produce a second network usage information set. The second network usage information set is stored at the second level network data collector. The first level network data collector is defined to include a query manager, wherein the second level network data collector is in communication with the first level network data collector via the query manager.

In reference to the Examiner's remarks, Schweitzer fails to disclose a method for recording network usage including storing network data in a multiple level data storage system, including **defining the first level network data collector to include a query manager,**

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wherein the second level network data collector is in communication with the first level network data collector via the query manager. See Office Action mailed February 24, 2005, page 3. In Schweitzer, the central event manager (CEM), as referenced by the Examiner, operates to control all the gatherers, instructing them to perform, in a particular sequence, the operations defined in the computation flow. See Schweitzer, paragraphs 0080-0089. The CEM 170 is not a first level network data collector as claimed by Applicants, nor is it a first level network data collector that includes a query manager for communication with the second level network data collector as claimed by Applicants. In further contrast, Schweitzer discloses that the Network Service Provider can perform the tasks of creating and running queries and reports on network activity and resource consumption through the User Interface Server (UIS), not at a first level data collector. See Schweitzer, para. 0095 – 0098. As such, one skilled in the art could not combine the teachings of Schweitzer in view of Carroll and arrive at the invention of independent claim 36. In view of the above, Applicant requests that the rejection of independent claim 36 under 35 U.S.C. §103 be withdrawn.

Dependent claims 37-39 depend upon independent claim 36. Accordingly, Applicant believes these dependent claims also to be allowable over the art of record.

Amended independent claim 40 recites a network usage system having a multiple level distributed data storage system. The system includes a set of first level network data collectors, wherein each first level network data collector receives network accounting data from a network data source, processes and stores the network accounting data at the first level network data collector. Each network data collector is configured to receive network accounting data including at least one of network usage data comprising the source address, destination address, byte or pack accounts and a time stamp, or network session data comprising a source address, a time stamp and a user name. A second level network data collector is provided, wherein the second level network data collector receives processed network accounting data from one or more first level network data collectors, processes and stores the network accounting data at the second level network data collector.

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Each first level network data collector includes a first level data storage system and the second level network data collector includes a second level data storage system, for storing processed network accounting data. The first level data storage system and the second level data storage system each include a processed data storage location, a meta data storage location and an error recovery information storage location. The processed network accounting data is stored at the processed data storage location. After storing of the process network accounting data, corresponding meta data is transferred to the meta data storage location and error recovery information is transferred to the error recovery information location. Each first level network data collector includes a query manager. The second level network data collector is in communication with the first level network data collector via the query manager. Each of the first level data storage systems includes a first level aging policy, wherein network accounting data is removed from the first level data storage system after a time period corresponding to the first level aging policy. The second level data storage system includes a second level aging policy different from the first level aging policy, wherein the network accounting data is removed from the second level data storage system after a time period corresponding to the second level aging policy. For the same reasons as stated herein with regard to independent claims 1, 21 and 36, Applicant believes independent claim 40 to be allowable over the art of record. Applicants respectfully request that the above rejection of independent claim 40 under 35 U.S.C. §102(b) be withdrawn.

Dependent claims 41-43 depend upon independent claim 40. Accordingly, Applicant believes these dependent claims also to be allowable over the art of record.

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CONCLUSION

In view of the above, Applicant respectfully submits that all pending claims are in form for allowance and are not taught or suggested by the cited references. Therefore, reconsideration and withdrawal of the rejections and allowance of all pending claims is respectfully requested.

Any inquiry regarding this Amendment and Response should be directed to either Phil Lyren at Telephone No. (281) 514-8236, Facsimile No. (281) 514-8332 or Steven E. Dicke at Telephone No. (612) 573-2002, Facsimile No. (612) 573-2005. In addition, all correspondence should continue to be directed to the following address:

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CERTIFICATE UNDER 37 C.F.R. 1.8: The undersigned hereby certifies that this paper or papers, as described herein, are being facsimile transmitted to the United States Patent and Trademark Office, Fax No. (703) 872-9306 on this 25 day of May, 2005.

By Steven E. Dicke
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